



The Official Newsletter of the **PAPAKURA RADIO CLUB INC.**

June 2025



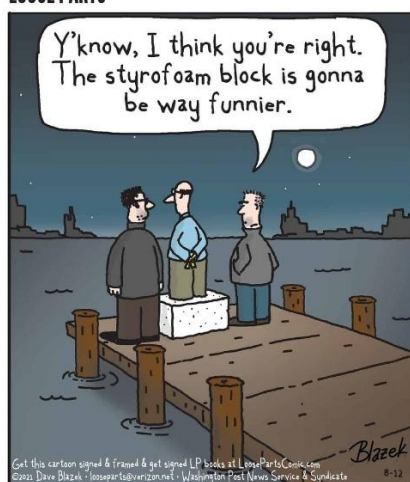
The Shortest Day Cometh



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LOOSE PARTS



LOOSE PARTS



LOOSE PARTS



June Calendar:

The NZART Conference Report will follow our General meeting. And then we will enjoy an early supper.

We encourage you to take the opportunity to chat with someone new and make the most of the supper that will follow.

If transport is a problem, let the committee members know, and we may be able to assist you with arranging a ride.

Alternatively, you can join the online Teams meeting by clicking the link below

[Join the meeting now](#) It will open just before the meeting begins.

June Dates

Wednesday 4th	General Meeting & Operating your radio remotely
Wednesday 11th	Activity Night
Wednesday 18th	Committee Meeting
Wednesday 25th	Project Night



If we each do a Little, it becomes a lot.

Club Activities:

The Radio room upstairs has been the focus of our efforts over the past few months. We have been working to enhance the AREC communications facilities to make them more suitable for events. Additionally, we are organising the space by installing equipment in 19-inch racks. These improvements should significantly enhance our ability to handle major events.

We are also taking action on the battery backup system to ensure that we can continue to operate during power outages.

We are looking to re-house some of the Valve AM radios (restored) upstairs, so if you're keen on checking out the collection, you may wish to have a look.

So take the time to have a look upstairs and see the improvements. Remember the equipment belongs to the club, so you can use it too.

Sad But True. (Just Smile)

Heard one on DMR not too long ago:

"How do you start a war at a hamfest? Have one person say 'I like Baofeng' and another say 'I like FT8.'"

Old hams don't die, they just become better grounded.

These two ops were having a QSO when a station breaks in and asks "say, any of you two happen to know what frequency the Swan user's net uses?"

Long pause, and one of the stations replies "just stay here with us and wait for it to drift by".

A local internet application developer was recently surprised by an automatic deposit in his PayPal account.

"I couldn't explain the \$1.25. My wife started asking questions about where the money was coming from," said Payton Henning.

"Ultimately, I linked it back to some amateur radio software I'd made in 2003. A ham had actually bought a license key for my API," he said.

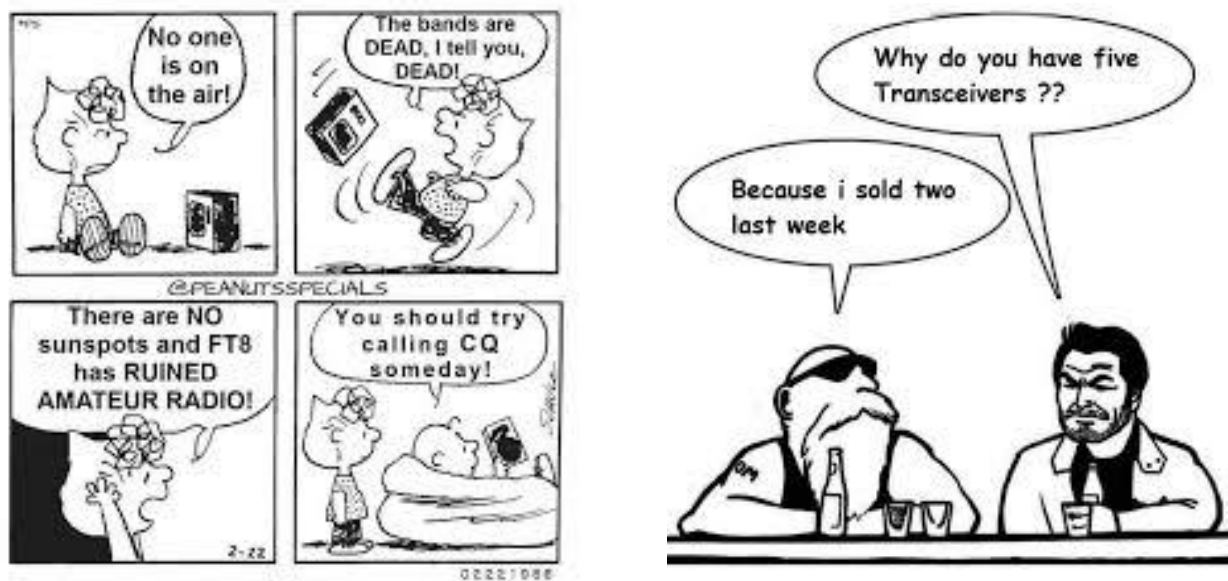
Henning doesn't have a ham radio license but knows a lot about hams.

"These guys are so cheap, I'd just never seen it happen before. The payment included the guy's callsign so I looked him up and reached out to him via email. He thanked me for the message and said that he accidentally clicked "purchase" when viewing the page. He then asked if I wouldn't mind refunding the \$1.25," Henning said.

DX Calendar May 2025

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
E6RS					T88HR								ZC4RH							T88CL							FP/KV1J		
					T88TJ														T88PB										
									VP9/WA4PGM																				
			FS/K9EL																										
JG8NQJ/JD1																													
										ZK3ZK																			
9K2HN Kuwait																													
VP8DPD																													
DP0GVN																													

Click any link above for details on the expedition.



FEATURED DX: ZC4RH CYPRUS

Dave, G4WXJ will be active as ZC4RH from Cyprus, IOTA AS - 004, 14 - 20 June 2025.
He will operate on 40 - 6m Bands, FT8, FT4, SSB, CW.
QSL via DK6SP, LOTW, ClubLog OQRS.

Cyprus

For many people today Cyprus is an exotic island in the Mediterranean Sea, where the tourist rests easily and pleasantly, there are many warm beaches and delicious fruits. All this is true, but this state conceals a lot of interesting and in other areas. In general, Cyprus is unique in its kind.



Island of flowers and suffering

There are many legends about the origin of the name of the island. One of them explains the name by the fact that there are many cypresses growing in this area, which are extremely beautiful here. Some connect the name with the deposits of copper, which were discovered here, because in Latin, this metal sounds like “cuprum”. However, opponents of this theory, on the contrary, assert that copper was named so because there was a lot of it just on this island.

In short, there were many oddities and all sorts of twists and turns in the history of Cyprus. Homer enthusiastically called this place an island of fragrance, and Byron called it an island of suffering. And both were right. Cyprus is indeed home to many lovely-smelling flowers and spices, but there are still echoes of the long war of independence that the locals fought with England.

Nearly 75% of the island's population is Greek, so for a long time it was considered Greek. But, to its misfortune, Cyprus was located at the crossroads of almost all trade routes in the Mediterranean Sea. Many people wanted to take possession of such a transshipment base. From time to time the territory went to the Roman Empire, Persia and Egypt. For some time, it was owned by Alexander the Great. Even the famous crusader Richard the Lionheart in the XII century captured this island with his army. However, the brave knight did not need the territory itself - material benefits were more important, and he sold it to other surrounding rulers. Once, the local queen even gave the island to Venice, but it was quickly seized by the Turks.

However, the Turks also had to squeeze in 1878 they were driven out of here by the British and made the island their colony. Only in 1959, did the colonisers leave, and here formed an independent republic. But the island's troubles did not end there. Now Turkish troops landed here under the pretext that not only Christian Greeks, but also Muslim Turks live here, and their presence on the island is about 30%, so the Turks should be given a corresponding part of the territory. The conquerors occupied even a large part of the land, but stopped near the British military bases, which still remained in Cyprus after colonisation. On the captured territory, the Turks formed their republic, which exists there to this day as a state recognised only by Turkey.

Now the conflict has passed into a calm phase, and the island is comfortable to rest at any time of the year, as well as to engage in commercial affairs.

True, the division of the island is still noticeable. For example, Nicosia, after German reunification, remained the only divided capital in the world. Its southern part belongs to the Republic of Cyprus and its northern part to the Turkish Northern Republic. The border of this division runs just along the historic streets of the city and is guarded by UN troops.

Seasons

Cyprus is attractive for tourist travel all year round. But each season has its own characteristics.

Winter: folk festivities

Greeks love winter for its festivities, especially New Year's Eve. Christmas fairs here are comparable in scale to those in Russia. The New Year's fireworks over the sea are something inexpressible. And it also seems very exotic to a tourist from Russia that tangerines can be taken not from a bag with gifts, but plucked directly from the branch of a nearby tree.

Snow falls here in the mountains in late December, which attracts skiers. For example, above the village of Prodromos there is its own piste that meets all international standards. And just an hour away is the sea coast.

In January, pink flamingos come here for wintering, and thousands of them settle on the local salt lakes. The sight is impressive.

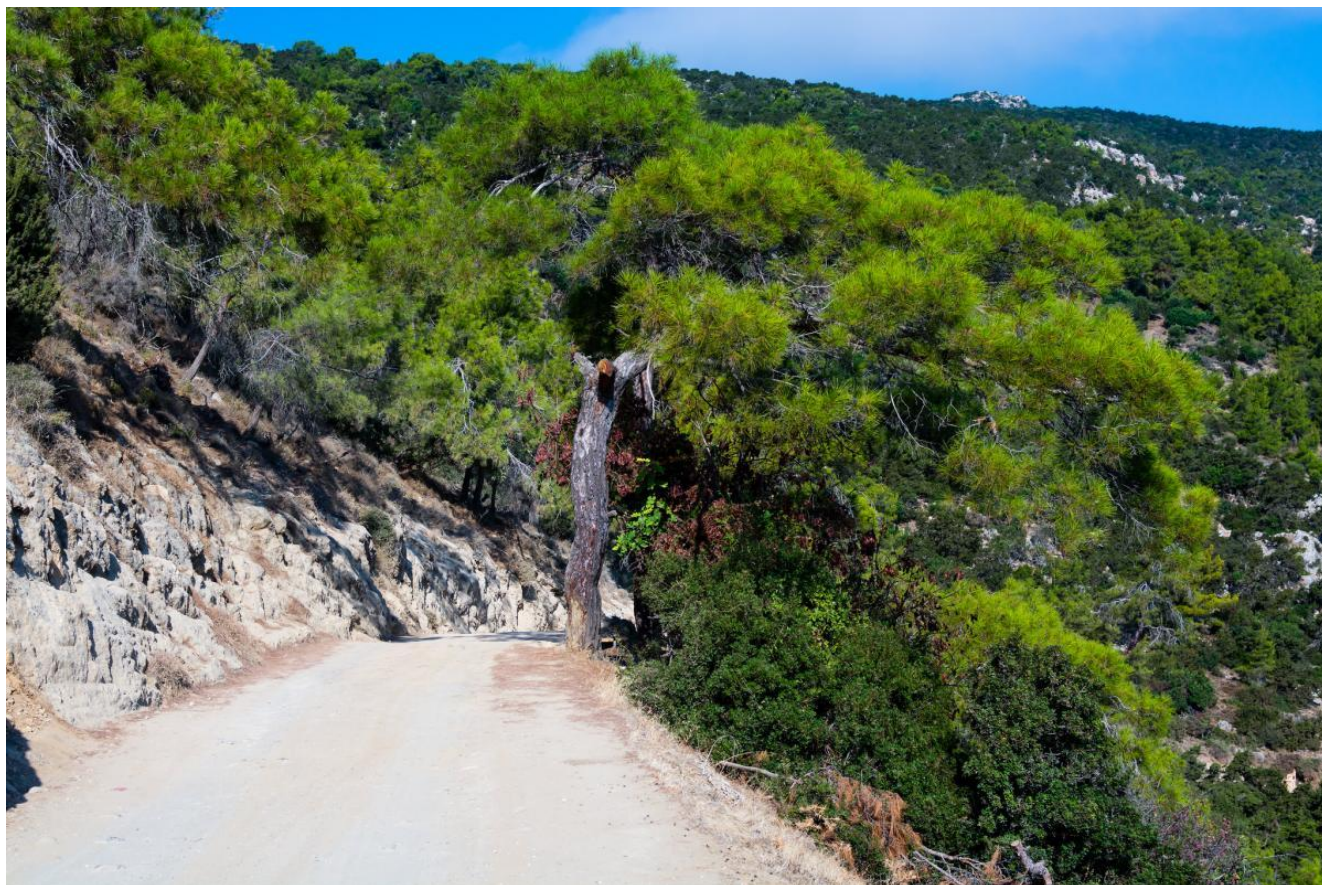
In general, winter here is warm - from +12 to +20 °C.

Spring: Tulip Festival

Homer must have been here in the spring. It is at this time of year that Cyprus is a feast of scents. You can find whole fields of tulips and poppies. Orchids grow actively, jasmine blooms lushly, citrus fruits and almonds delight.

Few people risk swimming until mid-May, but the air temperature rises to +20...+25 °C. You can sunbathe or go on a fascinating trip around the island.

Many people come here with children at this time: the resorts are not yet full of tourists, so you can relax in peace and comfort.



Summer: only the cacti remain, but the sea is beautiful

This time of year in Cyprus is the season for swimming and sunbathing. The main problem is not to get sunburned and avoid sunstroke. However, the level of service here is high enough to protect tourists from trouble. There are plenty of cool drinks, shade - too.

But there is almost no rain in summer here. The air is dry. And the vegetation on the coast is almost all burned out, only palm trees and cacti survive. But nature lovers can go up to the Troodos Mountains, where plants and flowers are still incredibly abundant.

Autumn: a truly velvet season

September and October in Cyprus is a time of grace. The heat is gone and the sea is still warm and calm. People swim here in general until November, and even longer. Only in December the temperature of air and sea water reaches about +18...+19 °C.

Usually in October, the bathing tourist season closes, the beaches are empty. But the island itself is not empty: numerous sports teams start coming here for pre-season training camps.

But in the fall it is full of fruits. Peaches, plums, grapes, pomegranates - there are so many of them in the markets that it is hard to believe your eyes.



What to see

There are many historical monuments on the island, so there are plenty of places to visit if you want to broaden your horizons. The most visited places are:

- Lazarus' tomb, where Jesus Christ revived the deceased;
- the tomb of Hala Sultan;
- Archaeological Museum of Antiquities;
- the fortress where the prototype of Shakespeare's Othello lived - commander Moro;
- Museum of shipwrecks;
- the ancient city of Kurion.

Faithful people tend to visit the monastery of Stavrovouni. It is believed that it was founded by St. Helena in 327.

Cypriot cuisine

The local cuisine is based on a combination of Turkish and Greek dishes. For example, meze, a kind of Russian meat or fish assortment, is extremely popular. Tourists also like kleftiko - meat of lamb or goat, baked in a special way. It is curious that in the past, this was the name of meat, which shepherds stole from the owners, buried in the ground and cooked by building a big fire over it. Today, kleftiko is cooked in a tightly closed oven.

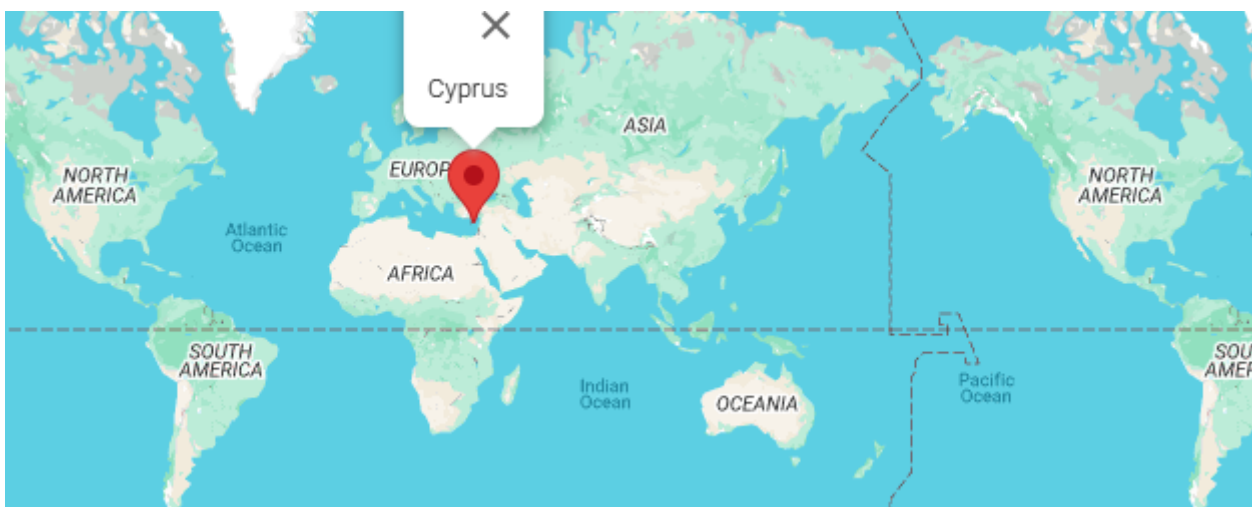
From sweet things, you should try jam from figs, walnuts and even eggplants.

Cinnamon is used almost everywhere, even in coffee. It is, by the way, served with a glass of ice water.

In conclusion, it remains to add that the locals are characterised by cordiality and hospitality. However, this is quite understandable: tourism today is the basis of the state's economy.

ZC4RH Where is Cyprus located. Map.

ZC4RH Cyprus. Sunrise 06-01-2025 at 02:31 GMT sunset at 16:56 GMT



UPCOMING CONTESTS

May 2025

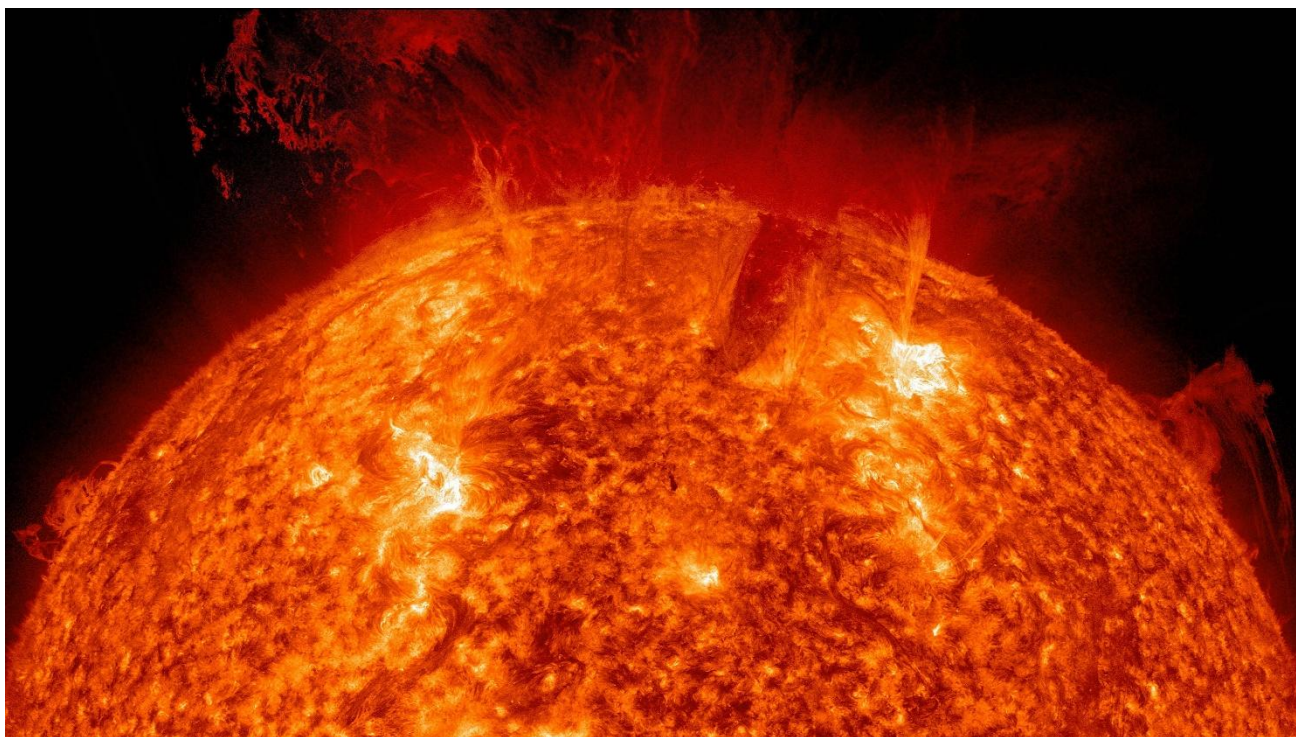
Refer to the contest websites for full rules, scoring information, operating periods or time limits, and log submission information.

Start - Finish		Date-Time		Bands	Contest Name	Mode	Exchange	Sponsor's Website
Date-Time	Date-Time	Date-Time	Date-Time					
2	0000	2	0100	1.8-28	K1USN Slow Speed Test	CW	Max 20 WPM; name, SPC	www.k1usn.com
2	1300	2	1400	1.8-28	ICWC Medium Speed Test	CW	Name, serial	internationalcwcouncil.org
2	1900	2	2030	3.5	RSGB 80m Club Championship, Data	Dig	RST, serial	www.rsgbcc.org
3	0000	3	0200	3.5-28	ARS Spartan Sprint	CW	RST, SPC, pwr	ars-qrp.com
4	1700	4	2100	144	VHF-UHF FT8 Activity Contest	Dig	4-char grid	www.ft8activity.eu
5	0000	6	0300	7	Walk for the Bacon QRP Contest	CW	Max 13 WPM; RST, SPC, name, mbr or pwr	qrpcontest.com/pigwalk40
5	1800	5	2200	28	NRAU 10m Activity Contest	CW Ph Dig	RS(T), 6-char grid	nrau.net
5	1900	5	2100	1.8-28,50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
6	1900	6	1959	3.5,7	HA3NS Sprint Memorial Contest	CW	RST, mbr or "NM"	radioamator.honlapepites.hu
7	0000	8	2359	28	10-10 Int'l Open Season PSK Contest	Dig	Name, SPC, mbr	www.ten-ten.org
7	0000	7	2359	1.8-28	VK Shires Contest	CW Ph	RS(T), VK shire, or CQ zone	www.via.org.au
7	0200	7	1459	1.8-28	Tisza Cup CW Contest	CW	RST, CQ zone	www.tiszacup.eu
7	0600	7	0800	7,14	Wake-Up! QRP Sprint	CW	RST, serial, suffix of previous QSO ("QRP" for 1st QSO)	qrp.ru
7	1200	8	0200	3.5-28	Atlantic Canada QSO Party	CW Ph	RS(T), province and county or SPC	acqp.ca
7	1300	8	0100	1.8-28,50,144	Kentucky QSO Party	CW Ph Dig	RS(T), KY county or SPC	www.kyqsoparty.org
7	1300	8	1300	50	UKSMG Summer Contest	CW Ph Dig	RST, serial, 6-char grid, mbr (optional)	uksmg.org
7	1500	8	1459	1.8-28	IARU Region 1 Field Day, CW	CW	RST, serial	www.darc.de
7	1500	8	1500	1.8-28	RSGB National Field Day	CW	RST, serial	www.rsgbcc.org
8	8 PM	8	9 PM	3.5	New Zealand Straight Key Night	CW	RST (or RSN) / Location / Name / Key / Transmitter / Power	https://z1.nz/new-zealand-straight-key-night/
9	0000	9	0200	1.8-28	4 States QRP Group Second Sunday Sprint	CW Ph	RS(T), SPC, mbr or pwr	www.4sqrp.com
10	1800	10	1859	3.5	DARC CW-Training Contest	CW	RST, mbr or serial	www.darc.de
11	0030	11	0230	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	naqcc.info
11	1700	11	2100	432	VHF-UHF FT8 Activity Contest	Dig	4-char grid	www.ft8activity.eu
11	1900	11	2030	3.5	RSGB 80m Club Championship, CW	CW	RST, serial	www.rsgbcc.org
14	0000	14	2359	3.5-28	YB ORARI DX Contest	Ph	RS, "ORARI" or "DX"	www.oraricontest.id
14	1100	14	1300	14,21	Asia-Pacific Sprint, SSB	Ph	RS, serial	jsfc.org/apsprint/aprule.txt
14	1200	15	1200	3.5-28	Portugal Day Contest	CW Ph	RS(T), CT district or serial	portugaldaycontest.rep.pt
14	1200	15	2359	1.8-28,50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
14	1400	14	1800	144,432	AGCW VHF/UHF Contest	CW	RST, serial, pwr, 6-char grid	www.agcw.de
14	1400	15	1400	50	REF DDFM 6m Contest	CW Ph	RS(T), serial, 4-char grid	concours-r-e-f.org
14	1500	15	1500	3.5-28	GACW WWSA CW DX Contest	CW	RST, CQ zone	www.gacw.ar
15	2300	16	0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or pwr	qrpcontest.com/pigrun
16	1200	16	1300	7	SARL Youth QSO Party	Ph	RS, age	mysarl.org.za
16	1900	16	2100	3.5-28	RSGB FT4 Contest	FT4	Signal report	www.rsgbcc.org
18	0030	18	0230	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	naqcc.info
18	1700	18	2100	1.2G	VHF-UHF FT8 Activity Contest	Dig	4-char grid	www.ft8activity.eu
19	0000	20	0300	14	Walk for the Bacon QRP Contest	CW	Max 13 WPM; RST, SPC, name, mbr or pwr	qrpcontest.com/pigwalk20
19	1900	19	2000	3.5-14	NTC QSO Party	CW	Max 25 WPM; RST, mbr or "NM"	pi4ntc.nl/ntcqp
21	0000	22	2359	1.8-28	All Asian DX Contest, CW	CW	RST, 2-digit age	www.jarl.org
21	0000	22	2359	50	SMIRK Contest	CW Ph Dig	4-char grid, mbr (optional)	smirk.info/contest.html
21	1200	22	2359	All, no WARC	SKCC QSO Party	CW	RST, SPC, name, 4-char grid	www.skccgroup.com
21	1400	22	1400	50	IARU Region 1 50 MHz Contest	CW Ph	RS(T), serial, 6-char grid	www.iaru-r1.org
21	1400	22	1400	50	LZ International 6-Meter Contest	CW Ph	RS(T), serial, 6-char grid	www.radioclub-troyan.bg
21	1500	22	1500	1.8	Stew Perry Topband Challenge	CW	4-char grid	www.kkn.net/stew
21	1600	22	0400	3.5-28	West Virginia QSO Party	CW Ph Dig	RS(T), WV county or SPC	www.qst.net/wvqp
22	0000	22	2359	1.8-28,50	Feld Hell Sprint	Dig	See rules	sites.google.com/site/feldhellclub
22	0800	22	1400	50	WAB 50 MHz Phone	Ph	RS, serial, WAB square or country	wab.intermp.net/Contest Rules.php
25	0000	25	0200	1.8-28,50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
26	1900	26	2030	3.5	RSGB 80m Club Championship, SSB	Ph	RS, serial	www.rsgbcc.org
28	0600	28	1700	3.5-28	UFT QRP Contest	CW	RST, QRP/QRO, mbr or "NM"	www.uft.net
28	1200	29	1200	1.8-28	His Maj. King of Spain Contest, SSB	Ph	RST, EA province or serial	concursos.ure.es
30	1300	30	1400	1.8-28	QCX Challenge	CW	RST, name, SPC, rig	www.qrp-labs.com/party.html
30	1900	30	2000	1.8-28	QCX Challenge	CW	RST, name, SPC, rig	www.qrp-labs.com/party.html

Note: All dates and times are in UTC (Except SKN), Mbr = Membership number. Serial = Sequential number of the contact. SPC = State, Province, DXCC Entity. XE = Mexican state.

ARE WE READY FOR THE WORST SPACE WEATHER?

When you look at the amount of money spent on weather forecasting (despite the fact that almost every forecast is wrong) it would surprise you to realise that although space weather has never been more necessary in today's high technology world, it still gets only a pittance of funding



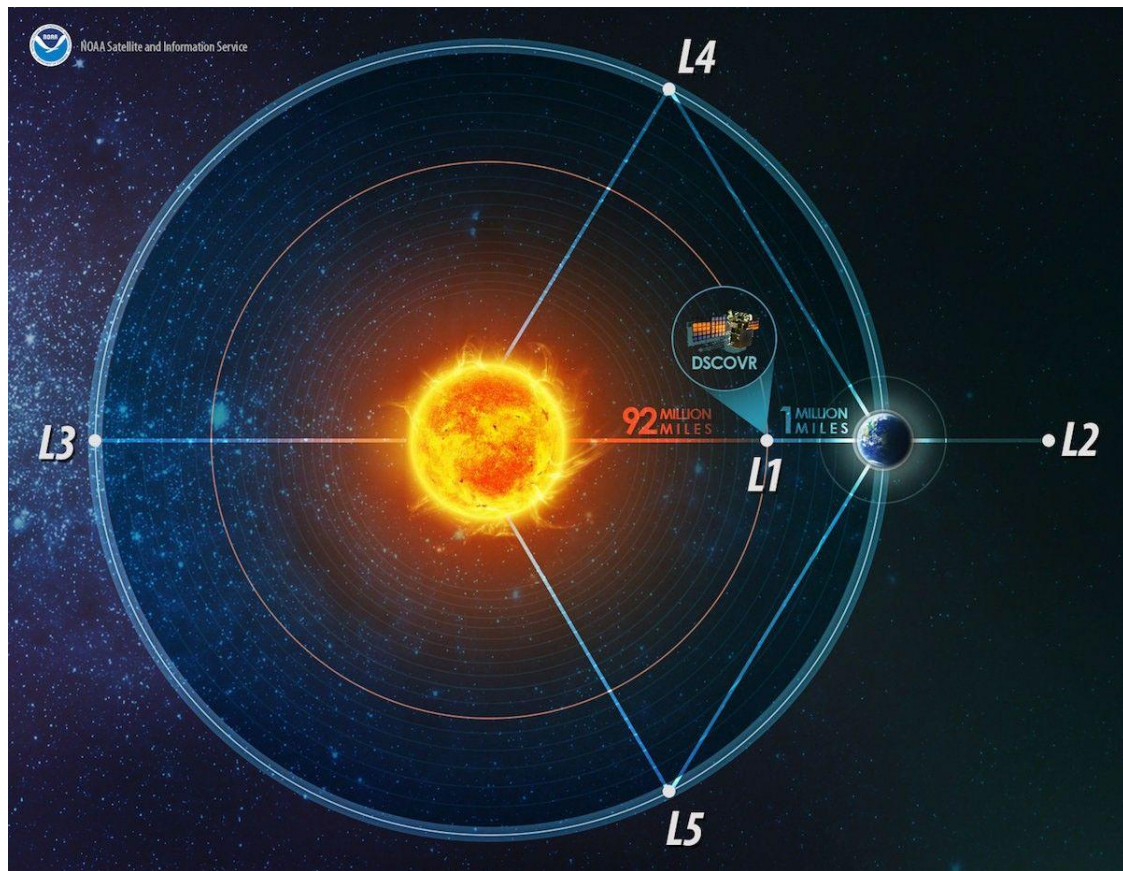
Imagine being told a storm is heading your way, but you won't know how bad the winds are or whether they'll knock out power until just minutes before it hits. That's the challenge scientists face when it comes to predicting solar storms.

We've come a long way in understanding space weather. We can spot solar storm eruptions, track their speed, and estimate when they'll arrive at Earth, sometimes with up to a day's warning. However, one critical piece of information remains frustratingly out of reach until the last moment: the orientation of the storm's magnetic field, known as the Bz component.

When a coronal mass ejection (CME) erupts from the sun, it carries with it plasma and magnetic field from our star. The orientation of the magnetic field will either be a northward or southward Bz, or a combination of the two, and that magnetic orientation determines how strongly the incoming solar storm will interact with Earth's magnetic field. A southward Bz connects more easily with Earth's own field, allowing energy to pour in and supercharge auroras — or in extreme cases, disrupt satellites, radio signals, power grids, and GPS. A northward Bz, on the other hand, may pass by with minimal impact.

Our current measurements only occur when it reaches the L1 (Lagrange Point) giving us no more than an hour or two's warning. If we are to have more advanced warning, we would need to know the Bz as soon as it leaves the sun.

Most Space weather scientists put our ability to predict solar weather, based on current expenditure and focus, as being about 50 years away. That's how long it will take to get additional satellites at more LaGrange points (Specifically L4 and L5 to give more information to feed prediction models.



But will 50 years be too late?

So why don't we just build this system now? The short answer is cost and complexity. Space weather forecasting doesn't yet command the same resources as Earth weather forecasting, even though the stakes are growing. As our world becomes more dependent on satellites, navigation, and global power infrastructure, we are increasingly vulnerable to space weather extremes.

The improvements needed could take decades to fully implement. That's assuming consistent investment and a clear prioritisation of space weather infrastructure — neither of which is guaranteed.

But 50 years might be too late. Extreme solar storms — like the famous Carrington Event of 1859 — are rare, but they do happen. A similar event today could cause trillions in damage globally by disabling satellites, knocking out power for weeks or months, and severely disrupting communications and aviation.

A more recent example, a near-miss in July 2012, where the sun fired a colossal CME into space that missed Earth by just a week.

In 2013, Dan Baker director of the University of Colorado Boulder's Laboratory for Atmospheric and Space Physics (LASP) [wrote a paper](#) about the 2012 eruption, stating that if it had happened just a week earlier, Earth would have been in the line of fire and "would still be picking up the pieces technologically," a year after the event.

Current and future missions

Our increasing dependence on technology is making us more vulnerable than ever.

It's not that the sun is doing anything different, It's the fact that we have become more and more dependent on technology. Especially space-based technology.

So, how are we currently keeping a watchful eye on the sun, and what future missions can we look forward to?

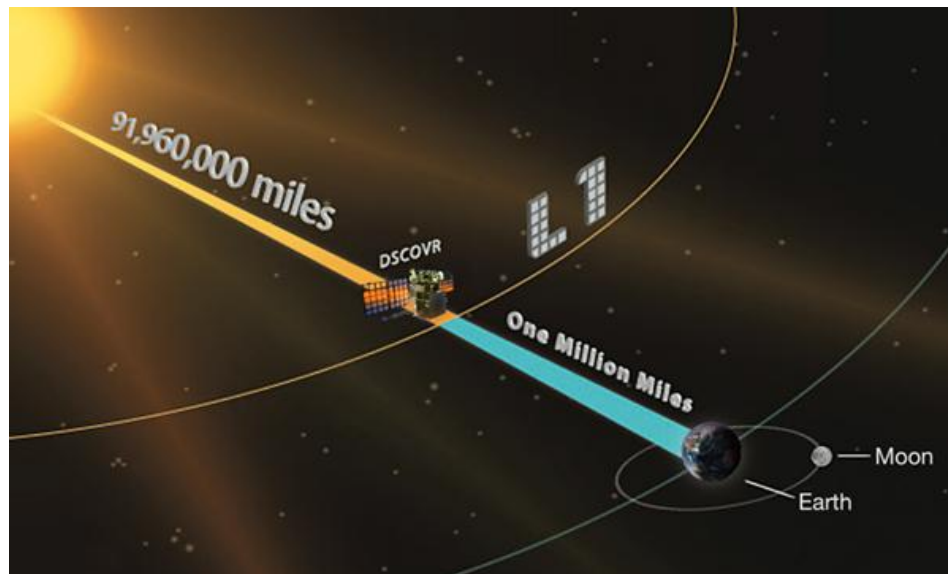
Some of our most dependable tools for tracking the sun are already hard at work. One of these is the Global Oscillation Network Group, or GONG. This worldwide network of six identical telescopes provides nearly round-the-clock coverage of the sun. Run by the U.S. National Solar Observatory, GONG has been monitoring solar activity since the 1990s and remains a crucial part of our space weather forecasting toolkit.



One of the GONG network telescopes is located at El Teide Observatory, Canary Islands. (Image credit: Carlo Morucchio/REDA/Universal Images Group)

GONG delivers a steady stream of images showing the entire face of the sun, updated every minute. These images include information about solar motion and magnetic fields — key ingredients in predicting when and where solar eruptions might occur. The network even helps scientists monitor the far side of the sun, using solar "vibrations" to detect active regions we can't see directly. All of this helps forecasters spot potential solar storms before they erupt and fine-tune models that estimate how those storms might affect Earth.

Another vital piece of our current space weather warning system is the Deep Space Climate Observatory (DSCOVR) located at Lagrange 1 (L1). Akin to a sensor buoy at sea warning of an oncoming tsunami, DSCOVR provides real-time data on the solar wind, which helps forecasters issue alerts about incoming geomagnetic storms. Depending on the speed of the solar wind, DSCOVR can give anywhere from 15 to 60 minutes' warning before a solar storm hits Earth. That short window is critical for operators of satellites, power grids, and communication systems.



Together with other satellites like NASA's ACE and ESA's SOHO, these missions form a patchwork of solar monitoring tools, but gaps in coverage still remain. That's where future missions like Vigil aim to make a big difference.

Looking ahead, one of the most promising additions to our solar storm warning system is the European Space Agency's Vigil mission, slated to launch in 2031. Vigil will sit at the Lagrange Point 5 (L5) — a location that gives it a unique sideways view of the sun-Earth line. From there, it will monitor solar eruptions from the side, helping scientists detect the shape, speed and crucially, the magnetic orientation (Bz) of incoming CMEs before they head our way.

Observations from L5 will give scientists a heads-up on what is heading to Earth about a week in advance, a huge increase on the current hours.

But in reality, it's unlikely that we will take Space weather seriously until there is a major impact on our space hardware (or our earth based systems), and history tells us it's not a matter of if it happens, but rather a matter of when it happens.

Then perhaps Private companies will be interested in setting up their own monitors, and we might start to get more data to allow us to predict space weather, rather than just react to it.

T CORONAE BOREALIS ISN'T THE ONLY STAR READY TO BLOW — MEET U GEM

Every clear night before going to bed, I look out my lounge window and check on T Cor Bor. T Corona Borealis is a recurrent nova that blows its top about every 80 years. The last eruption occurred in February 1946, when it rose to magnitude 2.0, briefly outshining the constellation's brightest star, Alphecca (mag. 2.2). So far, T CrB has refused to perform, even though a dip in its light in 2023 — a near-match to one that preceded the 1946 eruption — seemed to portend an imminent outburst last year.

We continue to wait, watch and hope. At times, it can feel like the star is yanking our chain, daring astronomers to make one more prediction to prove it has the upper hand. But as Yoda from Star Wars might say, "Predict astronomers will." But to date, nothing. The star refuses to follow predictions, and keep me waiting.

Variable star observers are accustomed to waiting. That's why we keep a list of targets to routinely check in hopes of catching at least one in outburst. Recurrent novae like T CrB are rare — there are only 10 known in our galaxy. But there are lots of other close binary stars, dubbed dwarf novae, that produce outbursts under similar circumstances. Their magnitude jumps may not be as extreme, but they're still dramatic, visible in modest instruments, and frequent enough to keep you on your toes.

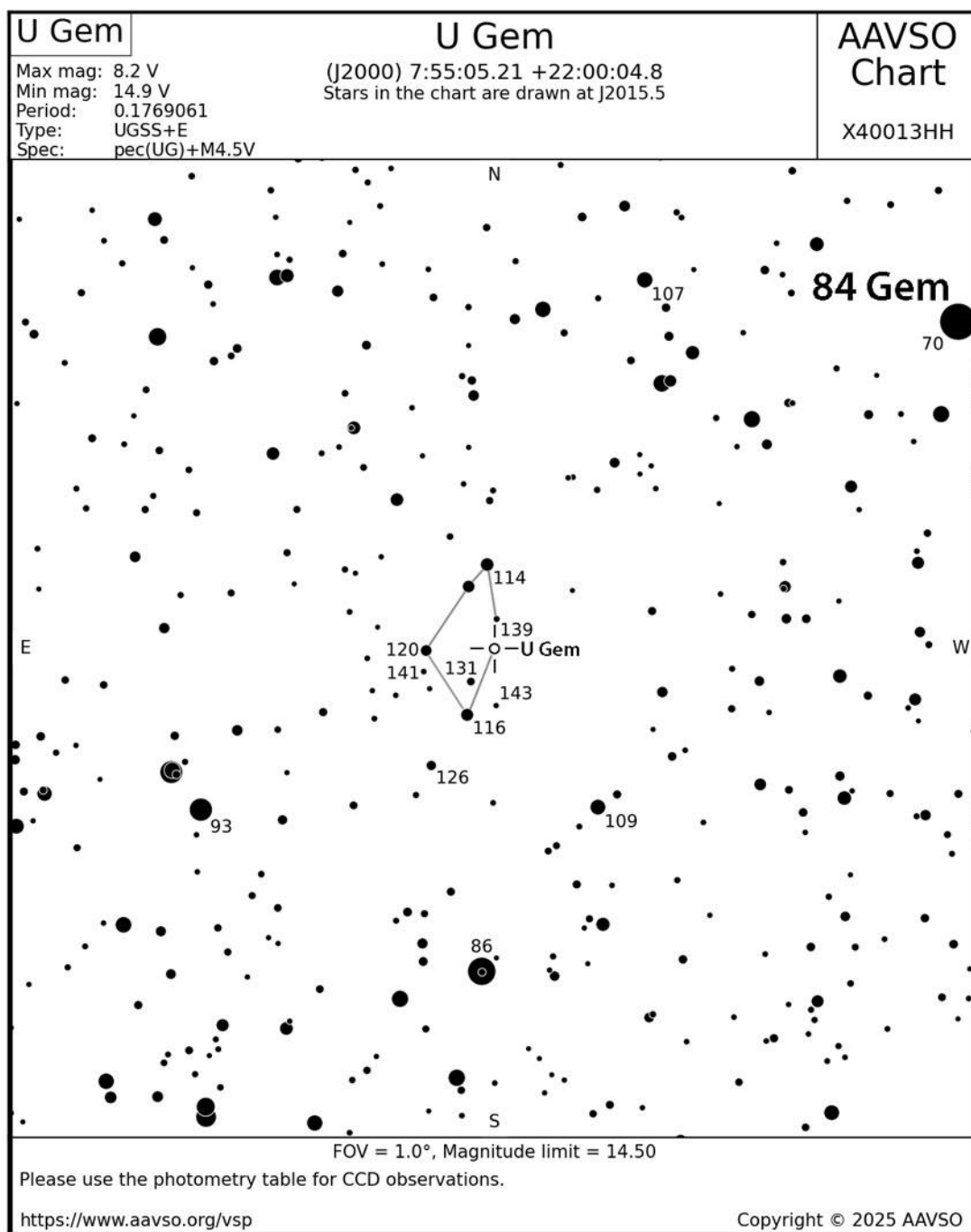
U Geminorum, located near the Gemini-Cancer border, is the archetype of the dwarf nova class. English astronomer John Hind initially thought it was a nova when he discovered the star at 9th magnitude in 1855 while searching for asteroids. But just three months later, it was reobserved in outburst again and has been monitored by amateurs and professionals ever since.

About every 105 days, U Gem brightens a hundredfold from magnitude 14.0 to around 9.0 over the course of a couple nights, followed by a return to its dim state a week or two later.

T CrB and U Gem have much in common. Both are binary stars, with a hot, dense white dwarf and a cooler companion in orbit about the pair's centre of gravity. Also like T CrB, the white dwarf siphons hydrogen gas from its companion into a spinning accretion disk. In the former, the disk material gets funnelled down to the dwarf's surface, where it gradually accumulates until the heat and pressure become so extreme that the gas ignites in a runaway thermonuclear explosion. During a nova outburst, the white dwarf can brighten up to 100,000 times as the expanding debris cloud balloons into space at over 1,000 kilometres a second.

Shovelling coal in the furnace

U Gem's flare-ups originate from both the disk and the transfer of material to the white dwarf. Mass transfer from the red dwarf pads the disk until it reaches a critical density, becomes ionised, and radiates light. The increase in density also causes the material to move through the disk more efficiently and spiral down to the dwarf's surface, where it's heated and consumed in a thermonuclear explosion — the light from which can last for days or even weeks. With the excess material transferred and ingested, the companion star proceeds to "restock" the accretion disk, setting the stage for the next outburst.



When might we expect U Gem's next flare? The more recent outburst occurred Dec. 1, 2024 — some 10 days beyond the usual waiting period. While its period can vary from as little as 62 days to 257 days, the time is definitely getting ripe for another flare-up. Hopefully, we won't have to wait long.

But of Course, Keeping an Eye out for T Corona Borealis is not a bad idea either.

RAMBLINGS FROM THE EDITOR'S DESK

As I write this, I'm recovering from a head cold that lasted a week and a half (so far), So that along with the cool temperatures is proof that we are well into winter. The NZART conference is coming to an end, and the shortest day of the year is fast approaching. The sun no longer rises as high in the sky, and is slowing it's northward march, preparing to turn back towards the south again.

I hope that those who made it to the conference enjoyed themselves, and travelled without incident, Well done to the Hutt Valley for showing their best, and welcoming Hams from all over NZ.

Starship Test Flight finally occurred and gave us the first re-used booster, and the first Ship 2 design to make space, so plenty of improvements, Sadly neither ship completed the mission, but lots of data was collected, and that's what testing is all about.

On the Theme of Space, Its been 60 Years since Ed White made the first American space walk. Even though it was not the first spacewalk, it was one that was public and televised, and the images are still strikingly beautiful. It's also 14 years since Space shuttle Atlantis made the final flight of the Space shuttle Program, ending 30 years of space shuttle service.

Mark Rocket. (yes the name is ironic) became the first New Zealander to reach space on a Blue Origin's sub-orbital mission. Mark joined Jaime Alemán, Jesse Williams, Paul Jeris, Gretchen Green and Amy Medina Jorge on board the RSS First Step — Blue Origin's first of two human-rated New Shepard capsules, for a trip above the Kármán Line, the 62-mile-high (100-kilometre) internationally recognised boundary between Earth and space.

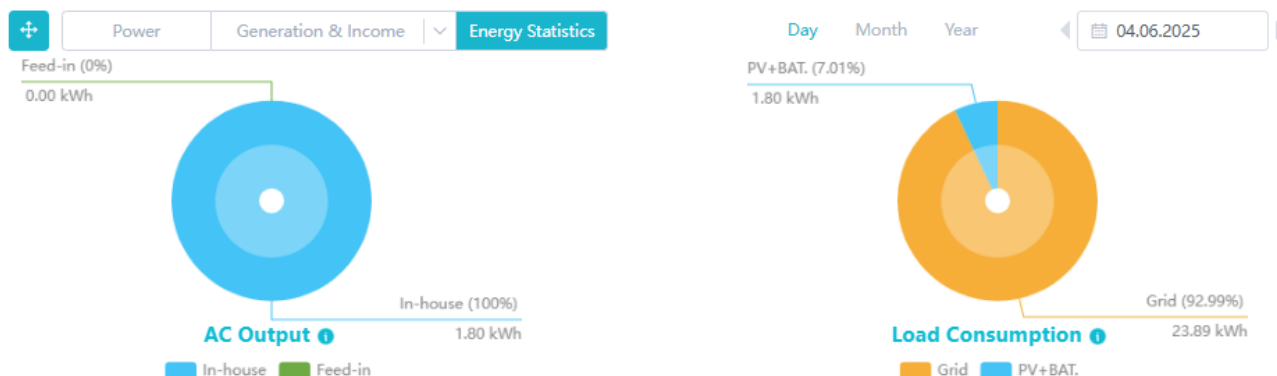


Blue Origin's NS-32 crew dubbed themselves "The Pathfinders." From left to right: Paul Jeris, Jaime Alemán, Gretchen Green, Amy Medina Jorge, Mark Rocket and Jesse Williams. (Image credit: Blue Origin)

For about three minutes, the six NS-32 crewmates experienced weightlessness and had an astronaut's eye view of the planet. His connection to aerospace goes beyond his apt name and today's flight; he's currently the CEO of Kea Aerospace and previously helped lead Rocket Lab, a competing space launch company to Blue Origin that sends most of its rockets up from New Zealand.

On a more down-to-earth level, Today may be my homes lowest solar generation day yet, So far this month, I've seen solar generation peak at 28.2Kwh and drop as low as 2.7Kwh (about 60 cents worth of power) to today it's a mere 1.3Kwh as the day comes to an end.

The reason that I even consider this was a recent article that "busted" the myth that solar systems do not produce power in winter, or on rainy days. Claiming the systems still produce power. This is technically true, but today that means I have purchased 93% of my needs, and generated 7% of my power today.



Or it reduced today's bill by 30 Cents!

The claim is technically true, but most people would say it was a waste of time today. And again, I wonder. Who fact-checks the fact-checkers?

The same is of course, true of radio systems.

Many people will claim that analogue radio is dead, and the future of ham radio is digital. And while there is an element of truth to this, the availability of FM radios at affordable costs means that most hams will start with an analogue radio. Many will keep using these, even when they get a digital one. So which FACT is true? Both are equally valid. The "Fact" is a matter of preference, what I prefer, or maybe what I can afford.

I recently discussed a blog that stated modern radios are computers with antennas. And again, an element of truth exists with this comment, but by the same count, it's not the way the radio works, it's the modes of operates on. An IC7300 is definitely a computer, but It lacks any digital modes, to do Digital Voice, I need an external Vocoder. To do FT*, I need a PC soundcard to be a modem.

HF is still primarily analogue (if you listen to the FT8 frequencies, you may disagree) but technologies like FreeDV sit on the bands, just as well as SSB, and the higher bands are mostly FM, with plenty of space for other modes (including SSB) but FM is the most common radio mode at VHF or UHF.

Is that really a bad thing?

I have a number of Older Ham Radios, including some that needed a crystal for each frequency, and it covered a few repeaters and a couple of simplex channels. I have some ex-commercial radios with 256 channels, that I can configure with 25kHz steps to scroll through frequencies as if I were turning a dial. But are these real ham radios? I have a couple where I select 144, 145, 146 or 147 MHz, followed by a dial to set the fine frequency, and it's a Phase Locked Loop system. But is it any better than the commercial rig?

Where does that place the Tait project, where we took a commercial radio, and controlled it via a new front panel to allow us to dial up any frequency?

That “Fact” is that Ham radio has always been “use whatever you can get”, experimentation and participation have always mattered more than doing it right.

I remember my wife being asked by a wise old experienced female ham radio operator, “Are you having fun?” Because you should enjoy yourself, otherwise why are you doing it?



So ignore the fact-checkers, don't care about what's right, care about doing what works for you, after all, it's the variety in our opinions that shows our embracing of diversity. There is no diversity if we are all the same. If you enjoy D-Star, use it. DMR and a hot spot? Knock yourself out. FM, go for it.

The only problem we might encounter is that as our options rise and the number of us on air drops, the number of conversations can fall too. It can get harder to meet new people. But there's one place you can keep up to date on what others are doing, and that's your local club.

So, despite the cold weather and the dark nights, pop into the clubrooms and say hi. Find out what others are enjoying, and discover the weird, wonderful and eclectic mix of people who are the Ham radio community.

And don't worry about fitting in, there is no model amateur, just opinionated ones, and they can be fun too. Hope to catch up with you soon



73, for now, de ZL1NXX

ANOTHER USE FOR THAT OLD PC. RADE IT!

With Windows 10 joining the list of operating systems that should be kept away from the internet, you may have an old laptop or two looking for a use. Maybe it's time to have a look at FreeDV.

FreeDV is a suite of digital voice modes for HF radio. Our flagship mode is the Radio Autoencoder (RADE). You can run RADE using a free GUI application for Windows, Linux and OSX that allows any SSB radio to be used for high quality digital voice.

FreeDV technology is being developed by an international team of radio amateurs working together on Machine Learning, DSP, coding, design, user interface and testing. The project is managed by a 6 person Project Leadership Team (PLT). Current development is being generously funded by an ADRC grant and our Financial Sponsor is the Software Freedom Conservancy. All software is open source, released under the (a) GNU Lesser Public License version 2.1 (GUI and legacy FreeDV modes) and two-clause BSD license (RADE).

Why FreeDV?

Amateur Radio is transitioning from analogue to digital, much as it transitioned from AM to SSB in the 1950s and 1960s. How would you feel if one or two companies owned the patents for SSB, then forced you to use their technology, made it illegal to experiment with or even understand the technology, and insisted you stay locked to it for the next 100 years? That's exactly what was happening with digital voice. But now, hams are in control of their technology again!

FreeDV is unique as it uses 100% Open Source Software, including the speech codec. No secrets, nothing proprietary! FreeDV represents a path for 21st-century Amateur Radio where Hams are free to experiment and innovate rather than a future locked into a single manufacturer's closed technology.

Controlled testing suggests our flagship RADE technology compares favourably to SSB on high and low SNR channels. It better utilises bandwidth and offers noise immunity benefits with good audio available even in weak signal conditions.

Here is what you need

A SSB receiver or transceiver

FreeDV GUI software, (Runs on macOS, Linux and Windows), The FreeDV site recommends compiling the software from source, But I have found a number of Linux repositories have maintained (and updated) Free Dv software available for easy use. There are also links to using later Raspberry Pi hardware to run FreeDv software.

Connecting Your Radio

If you don't have a built-in sound card for digital modes you can use the normal audio inputs and outputs of your radio. The same cables and hardware that you use for other digital modes that are based on PC programs will work with FreeDV, but you will need a second sound interface for the microphone and speaker connections to the FreeDV program. A USB headset of the sort used by gamers is all you need for the second sound interface. But if you have a USB sound card (or the Modem Project we already made) then you can connect to this for the radio interface instead.

Naturally this is made for SSB use, so it is mostly of use on HF radios, but any radio that has an SSB mode including VHF or UHF radios, could be used with FreeDV.

The Radio Autoencoder (RADE)

Radio Autoencoder (RADE) technology is a new approach to sending speech over HF radio. It combines Machine Learning (ML) with classical DSP to send high quality speech over HF radio at SNRs as low as -2dB. The speech signal has an audio bandwidth of 8kHz, but the RADE V1 signal requires just 1500Hz of RF bandwidth. The Peak to Average Power Ratio (PAPR) is less than 1dB, allowing efficient use of transmitter power amplifiers.

Testing indicates RADE works well on low and high SNR HF radio channels, and has impressive speech quality compared to SSB and traditional digital voice over radio systems. RADE V1 requires more memory and CPU than a traditional digital voice system, but will run just fine with the resources of a typical PC.

RADE V1 has been implemented with a combination of Python and C code. To demonstrate RADE the developers have integrated it with the FreeDV-GUI application V2.0 and above which runs on a Windows PC or laptop, and connects to HF radios using a sound card interface.

This allows you to talk into the laptop, and have your audio digitised, and then sent to the radio to be modulated as SSB.

The RADE was demonstrated at the Daytona Hamvention, and there following this a few coding improvements have been made.

The You-tube video on the technical aspects of FreeDv and Machine Learning aspects can be found at: <https://youtu.be/hengWrNZlc4> or by following the QR code here:



If any of you are interested, maybe we can look into the possibilities of learning about this at the clubrooms.

If not, I have access to the FreeDV reporter, and can see plenty of users worldwide. Including the frequency they're on.

HIGHLIGHTS FROM HAMVENTION 2025

Now the dust of Daytona has settled, we know that a record 36,813 people attended this event and a number of Bloggers, Vloggers and Podcasters have written about the various projects, and I have to say that, in the US at least, Ham radios future is looking pretty good.

Here are some of the projects that I've caught up on so far, and it's only a snippet of what I've read on.

Meshtastic.

Not only was Meshtastic used at the Hamvention, but special firmware allowed users to connect with each other in a shared group. This allowed attendees to connect with each other as a group. Something to think about for future New Zealand meetups, imagine a dedicated Meshtastic link between buyers and sellers at equipment sales.

Rhizomatica

No I hadn't heard of them either, but they are all about connecting communities, and one cool example is called HERMES.

High-frequency Emergency and Rural Multimedia Exchange System, better known by its acronym, HERMES, provides affordable digital telecommunications over shortwave/HF radio using a simplified visual interface accessible via smartphone or computer, allowing for the transmission and reception of data (chat, audio, documents, photos, GPS coordinates, etc). For security, this information can be easily encrypted and password-protected by the sender. HERMES, both architecture designs and software, is free and open-source.

The project has received funding from numerous sources, and was the winner of Mozilla's Wireless Innovation for a Networked Society (WINS) Challenge, giving us the opportunity to develop the system into something truly useful for isolated communities. Further funding support has come from ARDC.

The Goal is to provide reliable and affordable communications in rural and remote places where access to Internet is difficult or non-existent due to isolation or disaster – places generally extremely limited in their back-haul and energy options – as it is too expensive to rent satellite capacity and too slow to install terrestrial links, as well as with regards to access to electricity.

Designed to be used for Community to Community connections, Community to Base connections or even Community – Base – Internet connections.

And what Caught my eye is Project Mercury,. And open source replacement for VARA. Mercury is a free software software-defined modem solution for the High-Frequency (HF) band.

- **Features of Mercury**

- Least Square channel estimator with a configurable estimation window.
- Time and Frequency synchronization for low SNR values.
- TX and RX filtering with separate filters for time synchronization and data messages.
- Time and Frequency interleavers.
- LDPC codes (1/16 to 14/16) optimized for multipath channel
- Outer CRC coding.
- Energy dispersal for power amplification efficiency.
- Pre-equalization to compensate filters and DSP imperfections.
- Peak to average power ratio (PAPR) and modulation error rate (MER) measurements.
- Two pilot distribution modes for different channels and bitrate requirements with further optimized parameters such as number of symbols, number of carriers, and synchronization symbols.
- Dynamic partial configuration of the physical layer for computing performance enhancement.
- Enhanced API of the physical layer to allow for byte or bit transfer.
- Separate Data and Acknowledge message robustness configuration.
- Ladder-based Gearshift mode for the data link layer for low SNR.
- 17 robustness modes for the ARQ/ Gearshift.

And open Source, so not limited to just a Windows operating system.

The Summit Racing DX Engineering Crossover

Unless you hate off-road and Radio, you should check this one out.

Take a 2023 Jeep Gladiator, and then go made on upgrades, add beefy crate axles, balanced front and rear driveshaft assemblies, an air suspension system, improved front and rear disc brakes, adjustable tie-rod assemblies, snorkel intake system, steering stabilizer, rock sliders, front bumper with bull bar, rear bumper with hitch, projector headlights and flush-mount LED taillights, front and back seat covers, mini-programmer, 12,000-lb.-rated winch, and the list goes on.

And you get this

Which is a great start.

But then Add the DX engineering crew and let them loose.

DX Engineering roared into the project by equipping the Roamin' Gladiator with three mobile transceivers and compatible antennas that make the Jeep fully capable of handling UHF/VHF, HF, and GMRS (General Mobile Radio Service) communications.



The mobile radio installation makes the Gladiator ready for basic communication, emergency operating, fun on the air (think roving during State QSO Parties), pulling up for a POTA activation on a rainy day, or just about anything else you want to do on the available amateur bands.

Transceivers



To handle long-distance communication, ham-radio-licensed drivers of the Gladiator now have quick access to the popular Yaesu [FT-891 HF/50 MHz All Mode Mobile Transceiver](#) (YSU-FT-891). The rig's 32-bit floating-point DSP (Digital Signal Processing) optimizes QRM rejection; delivers a cleaner, clearer signal; and reduces operator fatigue. The FT-891 provides a stable 100W output (25W AM) and features a multi-tuning knob, pop-up menu, and full support of the Yaesu ATAS-120A Active Tuning Antenna System

An [Icom ID-5100A-D VHF/UHF Digital Transceiver](#) (ICO-ID-5100A-D) adds local communication capabilities to the Gladiator's comfortable cockpit. It features a dual receiver that allows you to receive two bands simultaneously, an intuitive touchscreen interface that provides quick and smooth operation, and a DV/FM repeater list function that helps you access nearby repeaters, even when you are visiting an area for the first time.



The control heads of the FT-891 and ID-5100A-D are dash-mounted in the Gladiator via a [Ram Mounts Tough-Track Mobile Device Mounting Bracket](#) (RMI-6082) and [Ram Mounts Adjustable Track Ball Mounts](#) (RMI-5085). Also used were [Consolidated Wire Microphone/Control Head Extension Cables](#) (CEW-RJ45EXT, CEW-RJ12EXT).



Amateur Radio Antennas

A Yaesu Auto Active Tuning Antenna (YSU-ATAS-120A) is connected to the FT-891 to provide coverage on 40, 20, 15, 10, and 6 meters. The antenna, designed for use exclusively with Yaesu transceivers that support ATAS, uses microprocessor-controlled voltages that are sent on the coaxial cable to adjust the antenna radiator length for best SWR. The antenna extends 75.1 inches.

Why was it chosen as the HF antenna for the installation? Ask this DX Engineering customer:

"The ATAS-120A makes mobile radio a real joy. No fiddling with all the different band antennas. Just select the band, the antenna tunes and you're on your way."

A [Comet Mobile VHF/UHF Vertical Antenna](#) (CMA-SBB-5) is connected to the ID-5100A-D to let the Gladiator's mobile operator communicate locally through repeaters. The black antenna measures 38 inches and, in the words of a DX Engineering customer, "works great right out of the box."



Lets play Spot the antennas

Yeah, I could see this as POTA Shack.

Zero Retries and IP400

IP400 was on display alongside the MMDVM group. It was exciting to not only see this project functioning, but to see it come together in a relatively short time span. Steve Stroh (N8GNJ) and Martin Alcock (VE6VH) have been pushing hard to get to this point and I'm excited to see what the next 6 months bring. We talked about the IP 400 reveal last month, but it's still cool.

As for the attendees, they liked everything from the hardware to the magnetic POTA sign for when you're doing an activation. But the re-occurring theme was that living on site for three days, and mixing with other Hams, talking and living radio was the coolest thing.

So maybe we need one of these, and even better if you have plenty of mix and mingle spaces.

Maybe all conventions should be like this.

And if you prefer YouTube videos, check out [this one from Ham Radio Gizmos](#) on the untold story of Single Side Band. – Yep another end of Ham Radio moment.



HEARD AROUND THE SCENES

NZ STRAIGHT KEY NIGHT

New Zealand Straight Key Night (Winter Edition) will be held on Sunday 8 June from 8pm to 9pm NZT (0800 to 0900 UTC) on 80 metres.

SKN honours the original amateur radio mode in an easy-going style. Operators send signal report, name, location, type of key, type of transmitter and power output. Stations are limited to 100W output power.

SKN is not a contest - but the operator who gets the most votes for the quality of their sending will win the Bruce Scahill Best Fist Award. This certificate honours Bruce ZL1BWG (SK), who was a dedicated supporter of SKN. Please email your nomination to ZL1NZ within one week following the event.



SKN uses the QSY Rule. Any station that calls CQ must QSY after making a contact.

Full details about SKN are available at <https://zl1.nz/skn> or you can email neil@zl1.nz or call ZL1NZ during or after the NZ Net.

SKN welcomes all straight key operators, regardless of skill level or speed.

73, Neil ZL1NZ, SKN Manager



THE NEXT NZART BROADCAST IS ON THE 29TH JUNE 2025 AT 8:00 PM (REPLAYED AT 9:00 PM) AND WILL BE POSTED ON THE WEBSITE ABOUT THE SAME TIME..

The HF broadcast is made on 3900 KHz, LSB at the top end of the 80m band. It will be rebroadcast in the Auckland area on the 6625 Repeater, and is available on the NZART website: [NZART-Official Broadcast](#)

SOME NETS – FOR WHEN YOU ARE LOOKING FOR SOME COMPANY

Day	Time (NZST)	Freq (MHz)	Group
Sunday	08:00	3.750	Southern Net
	08:00	146.625	Br 65 – Papakura Net
	09:00	3.700	Br 10 - Franklin
	09:00	3.755	Br 65. Papakura.
	09:30	146.900	Br 10 – Franklin ZL1SA
	19:00	146.700	Auckland YL Net
	19:45	145.575	Thames radio club ZL1DF
	20:00	3.710	Br 42. Titahi Bay
	20:15	146.625	Sunday News and Net (Auckland)
	21:30	146.900	Franklin Net (ZL1-SA)
Monday	11:30	3.850/7.125	Br 12. Hamilton
	19:30	3.757	Br 12. Hamilton
	20:00	Echolink	Basic Morse (ZL1PX)
	20:00	3.540	CW Practice Net
	20:00	3.605	Br 80. Hibiscus Coast
	20:30	3.870	O.T.C (Old Timers Club)
Tuesday	09:00	7.096	Ex Post Office Techs
	19:30	3.690	QRP ZL3TK
	20:00	3.581	CW improvers Net
	20:00	7.025 – 7.040	VK CQ QRS Group (CW)
	21:00	1.850	160m Net
Wednesday	11:30	7.125	SPAM Net
	18:00	14.049	VK CW NET
	19:30	146.700	ZL1AB Net
	20:00	3.660	Geek Net
	20:00	3.645	Br 02. Auckland
	20:30	146.525	W.R.S.C
Thursday	09:00	7.096	Ex Post Office Techs
	18:00	7.0674	SAS Net (CW)
	20:00	3.615	Br 89. REG Net
	20:30	3.696	ZL1OA
	20:30	3.666	LF Net ZL2CA
	20:00	3.690	ZL QRP SSB Net
Friday	20:30	3.850	SPAM (AM Mode)
	20:30	3.650	W.S.R.C.
	20:30	3.560	Digital Modes Net
Saturday	10:30	28.530	10-10 Down Under (AK Based)
	19:30	3.650	Christian Fellowship
	20:30	3.600	Br 62. Reefton/Buller
Daily or Other	07:30	3.696	ZL2OA
	08:30	3.730	ZL3RP
	15:00	14.300	Pacific Seafarers
	17:30	3.760	Home Brew
	05:00 Zulu	14.183	ANZA DX Net
	18:00	7.115	VK7OB
	19:30	3.720	ZL1MO
	18:30	3.766	ZL3LE
	08:00	3.730	ZL3DAC
	20:30	3.725	ZL2HN / ZL4RF
	21:00	3.677	Counties Net ZL2MA
	21:00	3.535	New Zealand Net (CW)

Our desire is that this will be a living list,
Please email zl1nux@outlook.com any updates, deletions or changes required.

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Our newsletter is published monthly and normally distributed just before the club meeting. Please forward articles etc to the editor Wednesday 1 week before the general meeting. Please notify any change of address. Including E-Mail Address to the secretary.

Meetings

General Meetings are held at the Clubrooms on the 1st Wednesday of each month, starting at 7.30 pm. Look at your calendar and mark these nights. The speaker follows the General Meeting.

Activity Nights are held on the 2nd Wednesday starting at 7.30 pm.

Committee Meetings are held on the 3rd Wednesday of each month at 7.30 pm unless advised.

Project Evenings are on the 4th Wednesday of each month.

AREC Meetings are on the 5th Wednesday night, also starting at 7.30 pm

AGM: Held in November

Subscription: Full membership and newsletter \$25.00 Family Membership and newsletter \$40.00
Bank Account number: 03-0399-0019896-00

Working Bees As required.

Branch 65 21 Award: For contacts with ZL1VK (5 Points) and 8 Papakura Radio Club Members (2 Points each). Total 21 Points. Cost \$5-00. Certified list and \$5-00 to Secretary, Papakura Radio Club. Address above.

ZL1VK Club Nets

146.625 MHz Sunday at 8.00 am. Controller ZL1NUX, Gavin Denby. If the repeater is not available, listen 146.475MHz simplex.

3.755 MHz Sunday at 9.15 am. Controller ZL1BNQ Richard Gamble. (Linked to 146.675 & 438.775)